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| APPLICATION NO.   | FILED DATE | FIRST NAMED INVENTOR      | ATTORNEY DOCKET NO.     | CONFIRMATION NO. |
|---|------------|---------------------------|-------------------------|------------------|
| 10/056,530  | 01/24/2002 | Leonard L. Diaddario, JR. | PVO 2 0009              | 4334             |
| 7590  | 01/19/2005 |                           | EXAMINER                |                  |
| Scott A. McCollister<br>Fay, Sharpe, Fagan, Minnich & McKee, LLP<br>7th Floor<br>1100 Superior Avenue<br>Cleveland, OH 44114-2518 |            |                           | ZHENG, LOIS L           |                  |
|   |            |                           | ART UNIT                | PAPER NUMBER     |
|   |            |                           | 1742                    |                  |
|   |            |                           | DATE MAILED: 01/19/2005 |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/056,530             | DIADDARIO, ET AL.   |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Lois Zheng             | 1742                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 21 December 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 3-5 and 8-24 is/are rejected.
- 7) Claim(s) 1-2, 6-7 and 11 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1, 8, 11-12 are amended and claims 25-27 are canceled in view of applicant's first submission after final filed on 21 December 2004.

Claims 1-24 remain for examination.

### ***Status of Previous Rejections/Objections***

2. In view of the applicant's amendment and arguments filed 21 December 2004, the finality of the rejection applied to claims 1-2, 7 and 11-15 of the last Office Action is withdrawn.

### ***Status of Previous Allowances***

3. The indicated allowability of claims 16-24 is withdrawn in view of the newly discovered reference(s) to Crotty US4,578,122 in view of Kasahara et al. US 4,200,475 and King et al US 2,393,640. Rejections based on the newly cited reference(s) follow.

### ***Claim Objections***

4. Claims 1, 8, 11-12 and 16 are objected to because of the following informalities: The examiner suggests applicant to change "other than nitrate ions" in instant claims 1, 8,12 and 16 to "other than said nitrate ions" and change "other than nitric acid" in instant

claim 11 to "other than said nitric acid" for the clarity purpose. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3-5, 8-10 and 12-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Instant claims 3-5, 8-10 and 12-24 discloses a conversion coating comprising chromium(III), cobalt(II) and nitrate ions. The conversion coating of the instant invention is substantially free of an oxidizing agent other than said nitrate ions. Instant claim 3 further teaches that the coating bath comprises sulfate ions. Instant claims 4-5, 8-9 and 12-24 further teach that the coating bath comprises a film polisher such as fluoride ions, such as fluoride ions from fluoride salts. However, both sulfate ions and fluoride ions can be used as oxidizing agents in inhibiting corrosion of metal surfaces as evidenced by Benderly et al. US 5,338,375(col. 2 lines 59-62) and Roberto et al. US 5,691,048(col. 3 lines 61-64). Therefore, the presence of sulfate and fluoride ions in instant claims 3-5, 8-10 and 12-24 contradict the claimed coating composition being essentially free of oxidizing agents other than nitrate ions/nitric acid as recited in independent claims 1, 8, 11-12 and 16 of the instant invention, which renders instant claims 3-5, 8-10 and 12-24 indefinite.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 16-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crotty US 4,578,122(Crotty) in view of Kasahara et al. US 4,200,475(Kasahara).

Crotty teaches an acidic metal treatment process comprising treating metal substrate such as galvanized substate(Abstract, col. 28-34) with a coating solution comprising trivalent chromium ions, cobalt ions, nitrate ions and fluoride ions(col. 2 lines 33-68, col. 4 lines 3-22, lines 42-46, col. 5 lines 50-53). After treating the metal surface with Crotty's coating solution, the passivated metal surface can be rinsed with water to remove residual coating solution on the metal surface(col. 8 lines 20-22).

However, Crotty does not teach the claimed dyeing and subsequent rinsing steps as recited in instant claim 16.

Kasahara teaches a process for dyeing a zinc-based alloy for 0.5 –10 minutes after the metal substrate is pretreated with a chromium-containing coating solution (Abstract, col. 2 lines 3-11). The examples of Kasahara further teaches a rinsing step after dyeing of the substrate is completed and before the final drying step(Examples 1-2).

With respect to claim 16 of the instant invention, it would have been obvious to one of ordinary skill in the art to have incorporated the Kasahara's dye bath treatment

and the subsequent rinsing steps into the coating process of Crotty in order to decoratively finished the metal product as taught by Kasahara(col. 1 lines 22-28).

With respect to claims 17 and 18 of the instant invention, Crotty further teaches the metal substrate is treated with the acidic coating solution at a temperature from about 40°F to about 150°F(i.e. about 4.44°C – about 65.56°C) for about 1 sec up to about 1 minute or longer(col. 3 lines 1-8). Therefore, the treatment temperature range and time duration encompass the claimed 20°C – 40°C and about 25-75sec as recited in instant claims 17 and 18 respectively. A prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed treatment temperature and duration ranges from the disclosed range of Crotty in view of Kasahara would have been obvious to one skilled in the art since Crotty in view of Kasahara teach the same utilities in their disclosed treatment temperature and duration ranges.

With respect to claims 19 and 24 of the instant invention, even though Crotty in view of Kasahara explicitly teach the claimed 20°C – 40°C and 20°C – 60°C temperature ranges for water rinsing after substrate treatment as recited in instant claims 19 and 24 respectively, one of ordinary skill in the art at the time the invention was made would have found water rinsing at room temperature(i.e. 20°C – 25°C) obvious since no specific rinsing temperature is required by Crotty in view of Kasahara. Therefore, instant claims 19 and 24 do not distinguish over Crotty in view of Kasahara.

With respect to claims 20 of the instant invention, the dye bath treatment time of 0.5 – 10 minutes as taught by Crotty in view of Kasahara overlaps the claimed 5-40 sec dye treatment time as recited in instant claim 20. Therefore, a prima facie case of

obviousness exists. See MPEP 2144.05. The selection of claimed treatment time duration range from the disclosed range of Crotty in view of Kasahara would have been obvious to one skilled in the art since Crotty in view of Kasahara teach the same utilities in their disclosed treatment time duration range.

9. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crotty in view of Kasahara, and further in view of King US 2,393,640(King).

The teachings of Crotty and Kasahara are discussed in paragraph 7 above.

However, Crotty in view of Kasahara fails to teach explicitly the claimed 20°C – 40°C dye treatment temperature and the claimed about 9-12 pH value as recited in instant claims 21 and 22.

King teaches a method for coloring non-ferrous metal surfaces such as galvanized metal by treating the metal surfaces with dye baths(page 1, col. 1 lines 1-3, lines 48-54). King further teaches that the dye solution treatment takes about 1 to about 10 minutes at bath temperature of about 20°C to about 90°C(page 1, col. 2 lines 32-36).

With respect to claim 21 of the instant invention, it would have been obvious to one of ordinary skill in the art to have incorporated the King's dye bath treatment step into the coating process of Crotty in view of Kasahara in order to obtain continuous color coverage, faithfulness of color, opacity control, permanent retention and adherence of the dye without fading as taught by King(page 1, col. 1 lines 4-8).

In addition, the dye bath temperature of about 20°C to about 90°C as taught by Crotty in view of Kasahara and King overlaps the claimed 20°C – 40°C dye treatment temperature range as recited in instant claims 21. Therefore, a prima facie case of

obviousness exists. See MPEP 2144.05. The selection of claimed dye solution treatment temperature range from the disclosed range of Crotty in view of Kasahara and King would have been obvious to one skilled in the art since Crotty in view of Kasahara and King teach the same utilities in their disclosed dye solution treatment temperature range.

With respect to claim 22 of the instant invention, King further teaches that the dye solution pH is about 3.0 to about 8.0(page 1, col. 2 lines 32-33). Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the pH range in the dye bath of King into the dye solution of Crotty in view of Kasahara in order to achieve the high quality color finish as taught by King.

Furthermore, about 8 pH value of Crotty in view of Kasahara and King read on the claimed lower pH value of about 9 as recited in instant claim 22. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed dye solution pH range from the disclosed range of Crotty in view of Kasahara and King would have been obvious to one skilled in the art since Crotty in view of Kasahara and King teach the same utilities in their disclosed dye solution pH range.

10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crotty in view of Kasahara, and further in view of Shinozaki et al. US 5,200,292(Shinozaki).

The teachings of Crotty and Kasahara are discussed in paragraph 8 above.

Kasahara further teaches that the dye can be an organic dye such as an acid dye or a mordant dye, which encompass the claimed Mordant diazo dye as recited in instant claim 23. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05.

The selection of claimed Mordant diazo dye from the disclosed organic dye of Crotty in view of Kasahara would have been obvious to one skilled in the art since Crotty in view of Kasahara teach the same utilities in their disclosed Mordant diazo dye.

However, Crotty in view of Kasahara does not explicitly teach the claimed borate ions in the dye solution as recited in instant claim 23.

Shinozaki teaches a light-sensitive composition comprising an aromatic diazo compound and a cationic dye/borate anion complex(abstract, col. 2 line 53-col. 3 line7)

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the addition of borate as taught by Shinozaki to the dye solution of Crotty in view of Kasahara in order to improve the light sensitivity as taught by Shinozaki(col. 2 lines 38-42).

#### ***Allowable Subject Matter***

11. Claims 1-2, 6-7 and 11 would be allowable if written to overcome minor informality objections.
12. Claims 8, 10 and 12-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
13. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach, either along or in combination, the claimed acidic conversion coating composition with a ratio of nitrate to chromium(III) and cobalt(II) of less than 1.5:1 and is substantially free of oxidizing agents other than said nitrate ions.

***Response to Arguments***

14. Applicant's arguments with respect to claims 1-2, 7 and 11-15 under 35 U.S.C. 103(a) have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ  
1/13/2005

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